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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,531

11/25/2003

George H. Hofmann

AD6935 USNA

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03/19/2007

E I DU PONT DE NEMOURS AND COMPANY

LEGAL PATENT RECORDS CENTER

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4417 LANCASTER PIKE

WILMINGTON, DE 19805

EXAMINER

ASINOVSKY, OLGA

ART UNIT

PAPER NUMBER

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/721,531

Applicant(s)

HOFMANN, GEORGE H.

Examiner

Olga Asinovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 20, 2006 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. Claims 5, 12, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 recites the limitation "modified polyvinylbutyral" in line 3. There is insufficient antecedent basis for this limitation in claim 5. Claim 5 is depending on claim 1. There is no "modified polyvinylbutyral" in claim 1. Claim 1 recites a polyvinylbutyral. The term "modified" makes a polyvinylbutyral indefinite in claim 5. In the original specification at page 5, line 25 the modified PVB can be obtained by heating in the presence of a modifying agent, which has hydroxyl-reactive groups.

4. A term "for preparing" in a process claims makes a process indefinite, because it is not clear that said thermoplastic elastomer composition is produced in the claimed process. Suggested replace "preparing" with prepared or produced.

5. Claim 12 recites “a modified non-blocking polyvinylbutyral.” There is no step of making “a modified non-blocking polyvinylbutyral composition” in a process claim 12. A starting polymer is not clear before a crosslinking reaction. There are no process conditions for preparing a thermoplastic elastomer composition. The term “continuous phase” is within the scope of a mixture of discrete phase of the crosslinked polyvinylbutyral with a thermoplastic polymer.
6. There is no definition for a catalyst in claim 14. The process for a crosslinking reaction in the presence of a catalyst is indefinite.
7. Claim 15 recites a “polyvinylbutyral modifying agent” (line 4). There is no definition for a modifying agent. A process for preparing a thermoplastic elastomer composition includes step of: (1) **combining** polyvinylbutyral, a thermoplastic polymer, and a polyvinylbutyral modifying agent, and (2) **modifying** the polyvinylbutyral in the presence of the thermoplastic polymer to form a modified non-blocking polyvinylbutyral/thermoplastic polymer mixture. There is no difference between steps of “combining” and “modifying” in the process claim 15, because a mixture of the components is obtained in each step. The step of “modifying” is indefinite in claim 15. There are no process conditions for producing a thermoplastic elastomer composition.

### ***Response to Amendment***

Applicant amends claim 1 including that a crosslinked polyvinylbutyral is dispersed as a discrete phase in the continuous phase of the thermoplastic elastomer composition.

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Claim 12 is amended including wherein the thermoplastic polymer is a continuous phase of the thermoplastic elastomer composition and wherein the crosslinked polyvinylbutyral is dispersed as a discrete phase in the continuous phase of the thermoplastic elastomer composition.

Claim 15 is amended such that a modifying agent is a modifying agent for a polyvinylbutyral. There is no definition for said "modifying agent."

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b):

9. Claims 1-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 10/333,993. Although the conflicting claims are not identical, they are not patentably distinct from each other because a non-blocking chemically modified polyvinylbutyral pellet composition in claims 1-6 and 11-14 of copending

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Application is readable in the present claims 1-11 and 17-18. The process for converting polyvinylbutyral into pellets by a continuous process in the presence of at least one thermoplastic polymer in claims 7-10 of Application No. 10/333,993 is readable in the present process claims 12-16 and 18-19. The difference is that the present claims disclose a crosslinked polyvinylbutyral, whereas claims in Application No. 10/333,993 disclose a chemically modified polyvinylbutyral. It would have been obvious to one of ordinary skill in the art to consider that a chemically modified polyvinylbutyral in the claims of Application No. 10/333,993 is readable for being a crosslinked polyvinylbutyral in the present claims because the same polymer having functional groups such as carboxylic acid and carboxylic acid esters is used in the present claims and claims of Application No. 10/333,993. Other difference is that the present claims disclose a discrete phase of the crosslinking polyvinylbutyral dispersed in the continuous phase of the thermoplastic elastomer composition, whereas claims of Application No. 10/333,993 disclose a chemically modified polyvinylbutyral in the pellets form, which is blended with at least one other non-reactive thermoplastic polymer (claim 14) of Application No. 10/333,993. The pellets form and a discrete phase are different wording under the same crosslinked PVB in the present claims and chemically modified PVB in claims of Application No. 10/333,993. It would have been obvious to one of ordinary skill in the art to consider that a process condition in the continuous phase of dispersing a discrete phase of crosslinked PVB in the thermoplastic elastomer composition in the present claims is readable in a process for making blends of chemically modified PVB with at least one thermoplastic polymer such as specified in

claim 10 of Application No. 10/333,993, because the step of a dispersing in the continuous phase and a mixing the pellets that obtained by a continuous process with a thermoplastic polymer in claims of Application No. 10/333,993 is the same meaning for obtaining the analogous resultant product.

10. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 1-19 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 10/333,993 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application. For explanation see paragraph 9 above.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. This rejection might also be overcome by showing that the copending application is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenox et al U.S. Patent 6,921,791.

The term "crosslinking polyvinylbutyral" in claim 1 can include any source for crosslinking PVB.

Lenox has been considered in the previously office action in the parent case under 102(e) rejection.

Lenox discloses a product and a process for producing thermoplastic elastomer being the reaction product of a dynamically vulcanized blend consisting of (a) at least one epoxidized elastomer, (b) at least one ionomer such as an ethylene/(meth)acrylic acid copolymer and diluent polymer (c) that can be selected such as polyvinylbutyral (PVB), claim 1 at column 8, column 2, line 15; column 3, line 37. The epoxidized natural rubber is readable for being a thermoplastic polymer in the present claims 1-5, 9-19. The ionomer copolymer such as ethylene/(meth)acrylic acid copolymer is readable for being a crosslinking agent for the present claims 1-19, for being at least a "functional equivalent" of polycarboxylic acid having polar moiety in the present claims 5 and 13. The diluent polymer can be selected such as polyvinyl butyral for the present claims 1-19. The diluent polymer can be present in the amount from 5 to 80 wt.%. The resulting

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product is a thermoplastic elastomer that can be extruded, column 3, lines 49-63. The claimed process is readable in a method for making a thermoplastic elastomer in Lenox invention, column 3, lines 49-63, wherein the ingredients were combined and blended/mixed under temperature above 250 F to cause the reaction of the polymeric components, column 3, line 55. Reference discloses a dynamically vulcanized blend, column 1, line 56. The claimed term "crosslinking" is within the scope of the "reaction" in the extruder, because reference discloses the analogous ingredients and the analogous process condition under a "dynamically vulcanized blend" In Lenox invention, column 1, line 56. The thermoplastic elastomer comprises filler in an amount up to about 90% by weight of the thermoplastic elastomer, column 2, lines 60-67.

Lenox does not disclose thermoplastic polymer such as selected polypropylene and polyvinylchloride in the present claims 7-8.

It would have been obvious to one of ordinary skill in the art to consider that the thermoplastic polymer such as polypropylene or polyvinylchloride or other polymer(s) in the present claims 6-8 would be expected in Lenox invention as a non-reactive polymer as an effort to find alternative material to substitute filler depending on the desired application.

Lenox does not disclose term "continuous phase." It would have been obvious to one of ordinary skill in the art to consider that term "continuous phase" in the present claims and mixture=blend of the ingredients in Lenox invention is the analogous meaning in the absence of the negative or unexpected effect and because the analogous conditions "to crosslink a modified non-blocking polyvinylbutyral composition in the presence of a

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thermoplastic polymer to form crosslinked polyvinylbutyral" is obtained in Lenox invention.

14. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenox et al U.S. Patent 6,921,791 in view of Hofmann U.S. Patent 6,506,835.

15. References have been considered in the previously filed office action.

16. Lenox is additional discussed in the paragraph 13 above.

17. Hofmann discloses a blend comprising polyvinylbutyral, polyvinyl chloride and an ethylene-based copolymer as a compatibilizer, column 2, lines 10-67. An ethylene-based compatibilizer having carboxyl functional group is readable in applicant's claims for being a crosslinking agent for polyvinyl butyral. All ingredients were added to the mixer except the PVC, column 5, lines 49-50. The crosslinking effect for PVB is readable in this step in Hofmann invention. Than, added polyvinyl chloride, claim 9 at column 10. The claimed continuous phase is also readable in Hofmann invention.

18. It would have been obvious to one of ordinary skill in the art to add polyvinyl chloride as teaching in Hofmann invention in to thermoplastic elastomer composition in Lenox invention for the purposes of being claimed PVC polymer, and, thereby obtain the claimed requirement, since any additional thermoplastic polymer would be expected in Lenox invention for making a product having desired physical properties, wherein the claimed continuous phase are readable in both references invention.

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19. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 853 097.

20. EP 0 853 097 (hereinafter EP'097) discloses polynivylbutyral and polymer having polar moiety including polyethylene methacrylic acid and polyethylene vinyl acetate, and mixture thereof, page 3, column 3, lines 1-13. The polymer having polar moiety is readable for being a crosslinking agent. The composition includes a non-polar polymer including polyethylene and polypropylene, column 3, line 33, for the claimed thermoplastic polymer. The composition can be prepared by melt mixing the ingredients in the extruder forming the reacted blend, column 3, line 22. The "reacted blend" is within the scope of crosslinking polyvinylbutyral. The obtained composition is non-sticky. The process condition in EP'097 is readable in the present claims.

21. The difference is that EP'097 does not disclose claimed continuous phase wherein the crosslinked PVB is dispersed as a discrete phase in the continuous phase of the thermoplastic elastomer composition. It would have been obvious to one having ordinary skill in the art to consider that a formation of a continuous phase is readable in EP'097 since the "continuous phase" is a mixture of the ingredients in the extruder that can have the same results, because it is the same meaning within the different wording under the same condition "mixing".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A

March 12, 2007



James J. Seidleck  
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